WHAT IS CLAIMED IS:

1. A method for preparing a metal-polymer laminated packaging material for use in packaging electrochemical cells, the method comprising:

subjecting a metal sheet to a surface treatment to increase at least one of hydrophobicity and polymer adhesion of the metal sheet surfaces;

thereafter, coating the surface treated metal sheet with a polymer to form a metal-polymer laminate.

2. The method of claim 1 wherein the surface treatment is selected from the group consisting of:

(a) surface cleaning with at least one of a caustic solution and an acidic solution,

(b) formation of a chromate conversion coating,

(c) formation of a phosphate conversion coating, and

(d) anodization.

3. The method of claim 2 wherein the metal sheet comprises aluminum foil.

4. The method of claim 2 wherein the metal sheet is subjected to treatment (a), and treatment (a) comprises cleaning the metal sheet with at least one acid rinse selected from the group consisting of sulfuric acid, phosphoric acid, and gluconic acid.

5. The method of claim 2 wherein the metal sheet is subjected to treatment (a), and treatment (a) comprises cleaning the metal sheet with at least one caustic rinse selected from the group consisting of sodium hydroxide, silicates, and carbonates.

6. The method of claim 2 wherein the metal sheet is subjected to treatment (b), and treatment (b) comprises cleaning the metal sheet, etching the cleaned metal sheet, deoxidizing the etched metal sheet, and contacting the deoxidized metal sheet with a chromium solution to form the conversion coating on the metal sheet.

7. The method of claim 2 wherein the metal sheet is subjected to treatment (c), and treatment (c) comprises contacting the metal sheet with a metal phosphate solution to form a phosphate conversion coating thereon selected from the group consisting of iron phosphate, zinc phosphate, and manganese phosphate, and rinsing the coated metal sheet with an acid solution.

8. The method of claim 2 wherein the metal sheet is subjected to treatment (d), and treatment (d) comprises forming an anodizing cell using the metal sheet as an anode, placing the anodizing cell in an anodizing electrolyte solution, forming a porous oxide coating on the metal sheet, and sealing the coating.

9. The method of claim 1 wherein the metal sheet comprises aluminum foil.

10. The method of claim 1 wherein the step of coating the surface treated metal sheet with a polymer comprises laminating an inner polymer layer to an inner surface of the metal sheet and laminating an outer polymer layer to an outer surface of the metal sheet.

11. The method of claim 1 wherein the step of coating the surface treated metal sheet with a polymer comprises laminating an inner polymeric barrier coating to an inner surface of the metal sheet and applying a heat sealable layer to the inner polymeric barrier coating, and applying an adhesive layer to an outer surface of the metal sheet and laminating an outer polymeric barrier coating to the adhesive layer.

12. A method for preparing a metal-polymer laminated electrochemical cell package, the method comprising:

subjecting a metal sheet to a surface treatment to increase at least one of hydrophobicity and polymer adhesion of the metal sheet surfaces;

thereafter, coating the surface treated metal sheet with a polymer to form a metal-polymer laminate;

placing an electrochemical cell in a package formed of the metal-polymer laminate; and

sealing the electrochemical cell in the metal-polymer laminate package.

13. The method of claim 12 wherein the surface treatment is selected from the group consisting of:

(a) surface cleaning with at least one of a caustic solution and an acidic solution,

(b) formation of a chromate conversion coating,

(c) formation of a phosphate conversion coating, and

(d) anodization.

14. The method of claim 13 wherein the metal sheet comprises aluminum foil.

15. The method of claim 13 wherein the metal sheet is subjected to treatment (a), and treatment (a) comprises cleaning the metal sheet with at least one acid rinse selected from the group consisting of sulfuric acid, phosphoric acid, and gluconic acid.

16. The method of claim 13 wherein the metal sheet is subjected to treatment (a), and treatment (a) comprises cleaning the metal sheet with at least one caustic rinse selected from the group consisting of sodium hydroxide, silicates, and carbonates.

17. The method of claim 13 wherein the metal sheet is subjected to treatment (b), and treatment (b) comprises cleaning the metal sheet, etching the cleaned metal sheet, deoxidizing the etched metal sheet, and contacting the deoxidized metal sheet with a chromium solution to form the conversion coating on the metal sheet.

18. The method of claim 13 wherein the metal sheet is subjected to treatment (c), and treatment (c) comprises contacting the metal sheet with a metal phosphate

solution to form a phosphate conversion coating thereon selected from the group consisting of iron phosphate, zinc phosphate, and manganese phosphate, and rinsing the coated metal sheet with an acid solution.

19. The method of claim 13 wherein the metal sheet is subjected to treatment (d), and treatment (d) comprises forming an anodizing cell using the metal sheet as an anode, placing the anodizing cell in an anodizing electrolyte solution, forming a porous oxide coating on the metal sheet, and sealing the coating.

20. The method of claim 12 wherein the metal sheet comprises aluminum foil.

21. The method of claim 12 wherein the step of coating the surface treated metal sheet with a polymer comprises laminating an inner polymer layer to an inner surface of the metal sheet and laminating an outer polymer layer to an outer surface of the metal sheet.

22. The method of claim 12 wherein the step of coating the surface treated metal sheet with a polymer comprises laminating an inner polymeric barrier coating to an inner surface of the metal sheet and applying a heat sealable layer to the inner polymeric barrier coating, and applying an adhesive layer to an outer surface of the metal sheet and laminating an outer polymeric barrier coating to the adhesive layer.

23. The method of claim 22 further comprising folding the metal-polymer laminate to form the package such that the heat sealable layer forms an inside portion of the package and the outer polymeric barrier coating forms an outside portion of the package, and wherein the electrochemical cell is placed in the inside portion of the package adjacent the heat sealable layer, and the package is sealed by sealing edge portions around the electrochemical cell.

24. The method of claim 12 wherein the surface treatment includes forming a coating on the metal sheet surfaces, the coating selected from the group consisting of a chromate conversion coating and a phosphate conversion coating.

25. A method for preparing a metal-polymer laminated electrochemical cell package, the method comprising:

coating an aluminum sheet with one of a chromate conversion coating, a phosphate conversion coating, and an anodized porous oxide coating;

thereafter, further coating the coated aluminum sheet with a polymer to form an aluminum-polymer laminate;

placing an electrochemical cell in a package formed of the aluminum-polymer laminate; and

sealing the electrochemical cell in the aluminum-polymer laminate package.

26. The method of claim 25 wherein the coating is a chromate conversion coating formed by cleaning the aluminum sheet, etching the cleaned aluminum sheet,

deoxidizing the etched aluminum sheet, and contacting the deoxidized aluminum sheet with a chromium solution.

27. The method of claim 25 wherein the step of further coating the coated aluminum sheet with a polymer comprises laminating a polymeric barrier coating to an inner surface of the coated aluminum sheet and applying a heat sealable layer to the polymeric barrier coating, and applying an adhesive layer to an outer surface of the coated aluminum sheet and laminating an outer polymer layer to the adhesive layer.

28. The method of claim 27 further comprising folding the aluminum-polymer laminate to form the package such that the heat sealable layer forms an inside portion of the package and the outer polymer layer forms an outside portion of the package, and wherein the electrochemical cell is placed in the inside portion of the package adjacent the heat sealable layer, and the package is sealed by sealing edge portions around the electrochemical cell.

29. The method of claim 25 wherein the coating is a phosphate conversion coating formed by contacting the aluminum sheet with a phosphating solution to form the coating and rinsing the coated aluminum sheet with an acid solution.

30. The method of claim 29 wherein the phosphating solution comprises iron phosphate, zinc phosphate or manganese phosphate.

31. The method of claim 25 wherein the coating is a porous oxide coating formed by assembling an anodizing cell using the metal sheet as an anode, placing the anodizing cell in an anodizing electrolyte solution, forming a porous oxide coating on the metal sheet, and sealing the coating.

32. An electrochemical cell package comprising:

a metal-laminate packaging material comprising a metal sheet having a protective coating thereon sandwiched between an inner polymer layer and an outer polymer layer, wherein the protective coating is selected from group consisting of a chromate conversion coating, a phosphate conversion coating, and an anodized porous oxide coating; and

an electrochemical cell structure surroundingly enclosed in the metal-laminate packaging material adjacent the inner polymer layer.

33. The package of claim 32 wherein the metal sheet comprises aluminum foil.

34. The package of claim 33 wherein the aluminum foil has a thickness of at least 17 μm.

35. The package of claim 32 wherein the inner polymer layer comprises a polymeric binder layer laminated to the metal sheet and a heat sealable layer on the binder layer.

36. The package of claim 35 wherein the outer polymer layer comprises an adhesive layer on the metal sheet and a polymeric binder layer laminated to the adhesive layer.